HEALTH SYSTEMS

PMO526

DEPARTMENT OF PREVENTIVE MEDICINE AND BIOMETRICS

IMPROVING SAFETY AND EFFECTIVENESS IN THE AMERICAN HEALTH CARE SYSTEM

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Introduction

The United States is generally perceived as having one of the best healthcare systems in the world. The United States spends more on health care — 13.7% of its gross domestic product — than any other of the 191 nations in the World Health Organization (WHO). Our medical research is second to none. Over the last 20 years, 30 scientists affiliated with U.S. institutions have received or shared the Nobel Prize in Medicine and Physiology, compared with 16 affiliated elsewhere. A U.S. scientist has received or shared the prize every year beginning in 1992. We have been at the forefront of innovation, witnessing an explosion in available technology, pharmaceuticals, and interventions. As a society, we view high quality medical care as an entitlement.

In spite of our accomplishments, at the beginning of the new millenium WHO ranked our health care 37th among its member nations. Although we have health care at the very best, 44 million Americans lack coverage for medical expenses, impairing access to quality care. In 1996 we ranked 26th internationally in infant mortality, with 7.3 infant deaths per 1,000 live births, just ahead of Cuba. Japan was first, with only 3.8 infant deaths per 1,000 live births. It also has the highest life expectancy, 74.5 years. We are ranked 24th with a life expectancy of 70.0 years.

Multiple reasons exist for the discrepancy between our investment and outcomes. The Institute of Medicine (IOM) has recently published two reports suggesting reasons, *To Err Is Human*, and *Crossing the Quality Chasm*, and has called for health care performance improvements in six dimensions: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity. In previous papers we have discussed efficiency and equity. This paper examines and suggests improvements in safety and effectiveness at the four levels suggested by the IOM: 1) the experience of patients and communities, 2) microsystems of care, 3) health care organizations, and 4) the health care environment.[1]

Patient and Community Perceptions

Health care should honor the individual patient, respecting the patient's choices, culture, social context, and specific needs. In addition to cost and social justice, the IOM ties quality to patient's experiences. In other words, perception is reality. Family doctors are remembered as having delivered quality care despite lack of advanced medical technology because expectations were met. Today, health care is largely depersonalized, with loss of long-term physician-patient relationships (continuity) and lack of quality time spent with providers. Patient management has assumed an assembly line structure. Managed care organizations provide health care through primary care "gate-keepers," fragmenting care between generalists and specialists. Reimbursement schemes and regulations make it difficult to shop around or switch providers. The perceived decline in quality has largely gone unnoticed by physicians. Only 29.1% of physicians believe quality is a significant problem compared with 67.6% of the public ($p<0.001$).[2]

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[1] *Health Affairs,* v. 21(3), May/June 2002, pp. 80-90.
[2] *Archives of Internal Medicine,* v. 162 (19), October 28, 2002, pp. 2186-2190.

We recommend that care be customized according to patients' needs and values. Personal preferences contribute significantly to perceived quality of health care. Preferences to consider include technical skills, communication skills, appointment waiting times, emergency response, staff helpfulness, and facility appearance. This customization of care may require organizational and environmental changes, allowing patients to receive care whenever and wherever they need it and in many forms, not just through face-to-face visits. One example we reviewed was a managed care physician in Los Angeles that made house calls to elderly patients. Health problems were identified early, preventing emergency room visits and hospitalizations, thereby reducing nosocomial infections and accidents. Other patients have chosen to pay for "Boutique Medicine," finding value in the personalized attention and extra service they receive.

We believe that patients need to assume increased responsibility for their health and health care. In order for patients to exercise the degree of control they choose over their health care decisions they require information in multiple formats. They need education concerning what is available. They should also understand that although popularized medical information available in the media or on the internet can be helpful, it may not be the bottom line, that medicine is an art, and that there are different solutions for different individuals. This requires effective communication and knowledge sharing between care providers and their patients that include unfettered patient access to their own medical information and to clinical knowledge. Although information technology should be used to standardize patient information and ensure the transparency necessary for patients and their families to make informed decisions, there must be time allotted and efforts made to re-establish patient-physician relationships.

Safety

The Institute of Medicine estimates that medical errors kill between 44,000 and 98,000 Americans annually. Although most physicians and consumers believe this overstates the problem there is widespread agreement, 69.7% of physicians and 86.6% of the public that medical error reduction should be a national priority.[3] The complexity of current technology and patient treatment/management options increases chances for error. Medical education is based on the "see one, do one, teach one" model. Providers are often too proud or "educated" to be told what to do. No one has the time or responsibility to oversee medical processes. There is a paucity of national health care safety standards and regulations. Our aging population increases the number of vulnerable patients requiring complex care and at risk for polypharmacy complications. We believe that patients ought to be as safe within the health care system as they are in their own homes.

Preventable medication errors account for over 7,000 deaths annually in hospitals alone, and tens of thousands more each year in outpatient settings. Illegibility, drug name confusion, and lack of established pediatric doses contribute to this problem. We believe that safety is a system responsibility. Some system changes that can help reduce medication errors include computerized order entry, bar coding, separate storage of potentially hazardous medications (e.g., potassium, insulin), and continued development of

[3] *Archives of Internal Medicine,* v. 162 (19), October 28, 2002, pp. 2186-2190.

new standards to prevent name confusion and reduce similar-appearing drug packaging. In addition, home visits that result in hospitalization avoidance may reduce medication errors that arise from one patient being confused with another patient.

A root cause analysis of surgery-related adverse events performed by the Joint Commission on Accreditation of Healthcare Organizations revealed that two-thirds involved incomplete communication between caregivers and that established procedures weren't followed in one-half. Other contributing factors included unavailability of necessary personnel when needed, incomplete pre-operative assessment, inconsistent post-operative monitoring, failure to question inappropriate orders, inadequate supervision of housestaff, and deficiencies in credentialing and privileging. System changes to reduce surgery-related adverse events include 1) improving staff orientation and training, 2) clearly defined/expected channels of communication, 3) standardized procedures across care settings, 4) monitoring compliance with practice guidelines/standards, and 5) education and counseling of physicians.

At the organizational and environmental levels, safety improvement strategies must be comprehensive, addressing technology, policy, regulatory, and financial aspects. Although the IOM believes nothing short of a sea change will suffice, we believe change will most likely be slow and incremental. To effect such massive change, national standards and regulation will be necessary. 59.8% of the public believes we need a national agency to provide leadership and research in reducing medical errors. Physicians are not so sure, with only 24.1% recognizing this need ($p<0.001$).[4]

Standards, regulations and practice guidelines must not ignore the central position of the patient. The standardization we seek is of the provider side of the equation. It is important to recognize that comparing medical industry safety standards with aviation industry standards is like comparing apples and oranges. Mechanization and standardization of health care may exacerbate the deterioration of patient-physician relationships, making errors inherent in system less acceptable. Cookie-cutter medicine is still bad medicine. Differences in opinion continue to exist over diagnostic criteria and treatment priorities.

We believe that information management and information technology should be leveraged to improve access to information and support clinical decision making. Electronic medical records and electronic data sharing will improve communication and decrease errors and misunderstandings. Hospital safety ratings and success/failure rates can be used at all levels for decision making and process improvement. Systems to report serious medical errors, adverse events and death should be mandatory. Cooperation among clinicians is a priority. Reappraisals of situations and determinations by multiple persons followed by comparison of independently derived data has a powerful ability to reduce the probability of error. For example, a physician types an order. A nurse approves and copies the order into a computer. It is transmitted to the pharmacy where the pharmacist checks the order. Finally, a computerized medicine storage system makes it available

[4] *Archives of Internal Medicine,* v. 162 (19), October 28, 2002, pp. 2186-2190.

We also believe that appropriate staffing and utilization of our human assets will improve safety. Studies have documented safety gains from appropriate nurse to patient ratios and from adequate intern/medical resident rest.

Effectiveness

The health care system should match care to science, avoiding both overuse of ineffective care and underuse of effective care. However, barriers exist that prevent realization of this utopia. Due to the complexities of health care today, it is foolish to believe that any one individual can achieve 99.99% reliability; and information technology and management systems to improve reliability and effectiveness will take time to implement. Organizations are driven by fear of a changing, chaotic, and unpredictable health care environment, and are focused on the financial bottom line. Fear-driven decisions are premature and often have unanticipated consequences. A focus on cost can impair organizational effectiveness and quality, and destroy collaboration between physicians, patients and their community. Health care consumers are shielded from actual costs. Out-of-court settlements made suing easy. As a result, they have developed an unwillingness to accept personal responsibility for their actions or follow through (i.e., quit smoking, change diet, start exercising). They want a pill, not behavior change. When things go wrong, they want money, even if they share fault. The malpractice insurance crisis has encouraged secrecy, impaired transparency, increased unnecessary tests and associated iatrogenic morbidity, and diverted resources from quality improvement.

Although we agree that clinical decision making should be based on evidence, we also recognize the continued need for decisions based on training and experience, for the ability to think outside the box. Industry-wide practice guidelines—evidence based medicine—are receiving growing support from the medical community and quickly becoming the philosophy for the future practice of medicine. They are helpful for dealing with single disease processes and elective/semi-elective procedures, are valuable patient education tools, and provide a *lingua franca* for communication with colleagues. However, they are limited in challenging situations where critical thinking is still needed for diagnosis and management. This limitation is pronounced where practice guidelines have been developed to be “systems friendly” or focus on the financial bottom line instead of being patient centered and taking into account patient/disease variance. Because of variance, practice guidelines should not be viewed as liability flak jackets.

We believe that health care organizations should strive to achieve a *Pareto Optimum* between patient welfare, financial health, employee well-being, and community building. The healthcare system should anticipate patient, organizational, employee, and community needs rather than simply reacting to events. Home visits have the potential to improve access, decrease overuse of inappropriate care (e.g., ER visits, hospitalization) and conserve resources and patients’ time. A recent cost analysis of a managed geriatric population revealed home visits saved $2,234 per member per month. The total potential savings to the Medicare program is $50 billion annually. Whether home visits or other means are used to effectively improve patient welfare, health care providers will need

education and training in order to make those changes. Appropriate staffing levels and use of personnel will free physicians and nurses for more complicated jobs.

Conclusion

Because perception is reality, the experiences of patients should serve as the fundamental source of the definition of quality. System changes enacted in the name of safety and effectiveness should combine the best of what technology has to offer with the best that we, as humans, can provide to one another as care providers, and not sacrifice one for the other. In the end, efforts to change the system at environmental, organizational and microsystem level must focus on individual patients, the relief of their suffering, reduction of their disabilities, and the maintenance of their health.